The Light Variation and Orbital Elements of DK Cygni

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Photoelectric observations are presented of 674 yellow and 662 blue magnitudes of DK Cygni made on 13 nights during 1961 and 1962. The light intensity remains constant in the minima during an interval of 25 minutes. A provisional solution of the elements based on complete eclipses is given. The depth of secondary minimum changes and this minimum is caused by the total eclipse.

1. INTRODUCTION

THE variable DK Cygni was discovered by Guthnick and Prager (1927). Their photographic light curve indicated the system to be of the W Ursae Majoris type. Visual light curves were published by Piotrowski (1936), and by Tsevevich (1954) from observations of Klepikov. Photoelectric observations were made by Hinderer (1960).

2. OBSERVATIONS

In the present study the variable was observed photoelectrically in two wavelength regions with the 28-inch reflecting telescope of the Flower and Cook

These are shown in Table II along with older data. The time of minimum observed by Hinderer was computed from his observational material. The $O-C$'s were computed from the following ephemeris:

$$\text{JD Hel. Min. I} = 2437999.5838 + 0.47069055 E.$$

The $O-C$'s in this table indicate the variability of the period. Tables IIIa and IIIb give the heliocentric Julian Day, the phase counted from primary minimum computed by the above ephemeris, and the magnitude difference between the variable star and the comparison star.

Numerous observations during the lower parts of the eclipse curves indicate the light intensity to be constant during an interval of about 25 minutes. The depth of secondary minimum varies. On JD 2437929 the depth was equal to that of primary. On JD 2437937 the secondary minimum was 0.02 magnitude brighter and on JD 2437995 it was 0.05 magnitude brighter than primary minimum. Also a systematic difference occurs

TABLE I. Variable and comparison stars.

Star	BD No.	R.A. (1900)	Dec. (1900)	Sp.
DK Cygni	+33°4304	21 ^h 30 ^m 50 ^s *	+34°09'0"	A2
comparison	..	21 30 51	+34 08.1	..
check star	+33°4301	21 29 51	+33 59.4	..

observatory. A yellow filter, Corning 3384 of thickness 3.0 mm, was used with an effective wavelength of 5300 Å for the cell-filter combination. The combination of two filters, Corning 5543 of thickness 2.5 mm and Corning 3060 of thickness 2.0 mm, was used for the blue filter, with an effective wavelength of 4420 Å for the cell-filter combination. The output of a 1P21 multiplier photocell was fed into a direct current amplifier and the amplified current was registered by a Brown recorder. The duration of each deflection was one minute.

Table I lists the BD numbers, the position of the stars, and the spectral type of the variable. The comparison star is not contained in the BD catalogue but its position was measured on a photographic plate taken at Sproul observatory.

3. TIMES OF MINIMUM LIGHT

A total of 674 observations in yellow light and 662 observations in blue light were made on 13 nights during 1961 and 1962. Three times of minimum light were determined by the method of Hertzprung (1928).

TABLE II. Times of minimum of DK Cygni.

JD Hel.	Min.	$O-C$	Meth.	Obs. ^a	Ref.
2424760.039	I	+0.039	pg	G,P	1
6568.423	I	+0.030	v	Ts	2
8068.5032	I	+0.0193	v	Pi	3
2433539.316	I	-0.004	v	Sz	4
3889.511	I	-0.003	v	Sz	4
4179.462	I	+0.003	v	Sz	5
4458.584	I	+0.005	v	Sz	6
4606.380	I	+0.004	v	Sz	6
4668.503	I	-0.004	v	K1	7
4702.402	I	+0.006	v	Sz	6
4988.578	I	+0.002	v	Sz	6
5303.470	I	+0.002	v	Sz	8
5762.391	I	-0.001	pe	Hi	9
6163.421	I	+0.001	v	Sz	10
6453.353	I	-0.012	v	Sz	11
7995.5831	II	+0.0002	pe	Bi	..
7999.5838	I	0.0000	pe	Bi	..
8000.5257	I	+0.0005	pe	Bi	..

^a G,P=Guthnick and Prager 1 (1927); Ts=Tsevevich 2 (1950); Pi=Piotrowski 3 (1936); Sz=Szafranec 4 (1952), 5 (1953), 6 (1955), 8 (1956), 10 (1958), 11 (1959); K1=Klepikov, see Tsevevich 7 (1954); Hi=Hinderer 9 (1960); Bi=Binnendijk.

in the descending branch of secondary minimum. However, not enough observations are available for the formation of separate light curves.

TABLE IIIa. Yellow observations of DK Cygni.

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
7579.5731	0.6712	0.290	7583.5940	0.2138	0.223	7873.7767	0.7180	0.223	7929.6620	0.4484	0.664
.5745	0.6742	0.285	.5954	0.2167	0.220	.7781	0.7209	0.227	.6636	0.4518	0.647
.5759	0.6771	0.282	.5968	0.2197	0.213	.7795	0.7239	0.219	.6647	0.4543	0.690
.5772	0.6801	0.279	.5981	0.2226	0.214	.7849	0.7355	0.219	.6703	0.4661	0.759
.5786	0.6830	0.279	.6037	0.2344	0.226	.7864	0.7386	0.216	.6720	0.4698	0.726
.5833	0.6929	0.267	.6051	0.2374	0.230	.7879	0.7418	0.218	.6738	0.4735	0.767
.5846	0.6958	0.253	.6065	0.2403	0.233	.7892	0.7445	0.218	.6754	0.4769	0.723
.5860	0.6988	0.251	.6079	0.2433	0.237	.8003	0.7681	0.220	.6807	0.4882	0.759
.5875	0.7019	0.244	.6134	0.2551	0.227	.8016	0.7708	0.221	.6821	0.4912	0.734
.5927	0.7130	0.225	.6148	0.2580	0.230	.8031	0.7741	0.221	.6851	0.4976	0.758
.5941	0.7160	0.224	.6162	0.2610	0.236	.8046	0.7772	0.219	.6904	0.5089	0.764
.5955	0.7189	0.226	.6176	0.2640	0.231	.8099	0.7885	0.228	.6925	0.5137	0.754
.5969	0.7219	0.221	.6231	0.2758	0.232	.8114	0.7918	0.243	.6939	0.5163	0.763
.6022	0.7332	0.196	.6245	0.2787	0.234	.8128	0.7947	0.228	.6955	0.5197	0.739
.6036	0.7361	0.210	.6259	0.2817	0.235	.8141	0.7974	0.235	.7013	0.5321	0.679
.6051	0.7393	0.208	.6273	0.2846	0.257	.8197	0.8094	0.251	.7030	0.5357	0.680
.6066	0.7425	0.208	.6329	0.2964	0.280	.8211	0.8124	0.243	.7045	0.5389	0.672
.6434	0.8207	0.267	.6343	0.2994	0.279	.8225	0.8153	0.253	.7059	0.5418	0.684
.6458	0.8257	0.283	.6356	0.3023	0.284	.8239	0.8183	0.257	.7113	0.5531	0.615
.6469	0.8281	0.286	.6370	0.3053	0.282	.8295	0.8301	0.286	.7128	0.5564	0.611
.6483	0.8311	0.289	.6426	0.3171	0.290	.8307	0.8328	0.295	.7146	0.5603	0.607
.6543	0.8438	0.312	.6440	0.3200	0.307	.8322	0.8360	0.298	.7203	0.5723	0.540
.6557	0.8455	0.309	.6454	0.3230	0.302	.8335	0.8387	0.299	.7219	0.5757	0.541
.6571	0.8497	0.319	.6467	0.3259	0.307	.8391	0.8505	0.326	.7233	0.5787	0.524
.6585	0.8527	0.319	.6523	0.3377	0.324	.8406	0.8537	0.334	.7250	0.5824	0.514
.6618	0.8598	0.340	.6537	0.3407	0.332	.8420	0.8567	0.348	.7307	0.5944	0.467
.6632	0.8628	0.348	.6551	0.3436	0.323	.8433	0.8596	0.353	.7321	0.5974	0.459
.6647	0.8660	0.350	.6565	0.3466	0.332	.8488	0.8712	0.382	.7328	0.5989	0.440
.6662	0.8692	0.356	.6620	0.3584	0.362	.8503	0.8744	0.389	.7342	0.6018	0.432
.6717	0.8807	0.381	.6634	0.3613	0.367	.8516	0.8771	0.394	.7356	0.6048	0.433
.6731	0.8837	0.392	.6648	0.3643	0.378	.8529	0.8800	0.400	.7404	0.6151	0.406
.6745	0.8866	0.403	.6662	0.3672	0.366	7915.7231	0.8349	0.292	.7432	0.6210	0.390
.6758	0.8896	0.412	.6718	0.3790	0.421	.7248	0.8383	0.290	.7446	0.6240	0.380
.6805	0.8994	0.453	.6731	0.3820	0.421	.7264	0.8417	0.296	.7460	0.6269	0.370
.6819	0.9024	0.457	.6745	0.3849	0.453	.7280	0.8452	0.307	.7474	0.6299	0.382
.6831	0.9051	0.464	.6759	0.3879	0.462	.7337	0.8572	0.343	.7529	0.6417	0.314
.6845	0.9080	0.483	.6815	0.3997	0.478	.7351	0.8602	0.359	.7543	0.6446	0.331
7583.5009	0.0161	0.780	.6829	0.4026	0.495	.7365	0.8631	0.362	.7557	0.6476	0.311
.5024	0.0193	0.754	.6843	0.4056	0.496	.7378	0.8661	0.360	.7571	0.6505	0.296
.5037	0.0220	0.756	.6856	0.4085	0.512	.7433	0.8776	0.385	.7627	0.6623	0.313
.5051	0.0250	0.758	.6912	0.4203	0.548	.7448	0.8808	0.377	.7640	0.6653	0.303
.5106	0.0368	0.688	.6926	0.4233	0.561	.7462	0.8838	0.398	.7654	0.6682	0.303
.5120	0.0397	0.660	.6940	0.4262	0.568	.7476	0.8867	0.404	.7668	0.6712	0.302
.5134	0.0427	0.656	.6954	0.4292	0.587	.7594	0.9118	0.502	.7786	0.6963	0.257
.5148	0.0456	0.637	.7009	0.4410	0.661	.7609	0.9150	0.508	.7804	0.7000	0.248
.5202	0.0572	0.594	.7023	0.4440	0.662	.7625	0.9185	0.532	.7820	0.7034	0.267
.5218	0.0604	0.579	.7037	0.4469	0.659	.7680	0.9300	0.584	.7835	0.7066	0.252
.5231	0.0633	0.553	.7051	0.4499	0.684	.7693	0.9330	0.583	.7890	0.7184	0.232
.5245	0.0662	0.547	.7106	0.4617	0.729	.7707	0.9359	0.611	.7904	0.7213	0.218
.5301	0.0783	0.496	.7120	0.4646	0.731	.7723	0.9394	0.608	.7917	0.7240	0.223
.5314	0.0808	0.484	.7135	0.4678	0.741	.7774	0.9502	0.672	.7931	0.7270	0.211
.5329	0.0840	0.472	.7148	0.4705	0.758	.7787	0.9529	0.676	.7988	0.7390	0.212
.5343	0.0869	0.471	.7162	0.4735	0.747	.7802	0.9561	0.693	.8002	0.7420	0.216
.5398	0.0987	0.440	7873.7182	0.5938	0.455	.7816	0.9590	0.708	.8015	0.7449	0.203
.5412	0.1017	0.429	.7197	0.5970	0.447	.7870	0.9706	0.756	.8029	0.7479	0.208
.5426	0.1046	0.408	.7212	0.6002	0.445	.7885	0.9738	0.753	7937.5583	0.2244	0.220
.5440	0.1076	0.406	.7267	0.6118	0.398	.7900	0.9770	0.774	.5597	0.2274	0.207
.5495	0.1194	0.372	.7281	0.6147	0.392	.7913	0.9797	0.771	.5611	0.2303	0.221
.5509	0.1223	0.376	.7295	0.6177	0.377	.7926	0.9824	0.766	.5624	0.2333	0.229
.5523	0.1253	0.360	.7307	0.6204	0.379	.8123	0.0242	0.754	.5680	0.2451	0.209
.5537	0.1282	0.342	.7364	0.6324	0.361	.8139	0.0277	0.723	.5694	0.2480	0.234
.5593	0.1400	0.338	.7379	0.6356	0.346	.8154	0.0308	0.720	.5708	0.2510	0.222
.5606	0.1430	0.333	.7393	0.6386	0.341	.8168	0.0338	0.703	.5722	0.2539	0.238
.5620	0.1459	0.315	.7408	0.6418	0.325	.8182	0.0367	0.703	.5777	0.2657	0.232
.5634	0.1489	0.295	.7475	0.6560	0.300	.8241	0.0493	0.642	.5791	0.2687	0.238
.5745	0.1725	0.288	.7490	0.6592	0.283	.8256	0.0525	0.599	.5805	0.2716	0.258
.5759	0.1754	0.266	.7505	0.6624	0.293	.8269	0.0552	0.594	.5819	0.2746	0.243
.5773	0.1784	0.284	.7599	0.6823	0.264	.8287	0.0591	0.592	.5930	0.2982	0.268
.5787	0.1814	0.278	.7656	0.6944	0.245	.8356	0.0739	0.511	.5944	0.3012	0.274
.5843	0.1931	0.236	.7670	0.6973	0.239	.8370	0.0768	0.484	.5958	0.3041	0.261
.5856	0.1961	0.229	.7683	0.7003	0.231	.8385	0.0800	0.477	.5972	0.3070	0.261
.5870	0.1990	0.225	.7697	0.7032	0.230	.8399	0.0830	0.478	.6026	0.3186	0.285
.5884	0.2020	0.224	.7752	0.7148	0.234	7929.6606	0.4455	0.650	.6041	0.3218	0.298

TABLE IIIa (continued)

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
7937.6055	0.3247	0.322	7965.5651	0.7261	0.232	7992.4755	0.8980	0.439	7995.6211	0.5810	0.515
.6069	0.3277	0.289	.5723	0.7413	0.206	.4768	0.9010	0.430	.6225	0.5840	0.503
.6123	0.3392	0.320	.5732	0.7433	0.208	.4782	0.9039	0.428	.6239	0.5869	0.491
.6138	0.3425	0.318	.5747	0.7465	0.196	.4796	0.9069	0.452	7999.4722	0.7628	0.202
.6757	0.4738	0.729	.5764	0.7499	0.196	.4852	0.9187	0.497	.4736	0.7658	0.206
.6770	0.4767	0.729	.5834	0.7649	0.204	.4866	0.9216	0.502	.4750	0.7688	0.206
.6784	0.4797	0.757	.5849	0.7681	0.206	.4880	0.9246	0.528	.4763	0.7717	0.187
.6798	0.4826	0.736	.5863	0.7711	0.208	.4893	0.9276	0.517	.4875	0.7953	0.208
.6854	0.4944	0.731	.5878	0.7743	0.211	.4949	0.9393	0.591	.4888	0.7983	0.218
.6868	0.4974	0.723	.5892	0.7772	0.207	.4963	0.9423	0.606	.4902	0.8012	0.220
.6881	0.5003	0.746	.5913	0.7816	0.207	.4977	0.9452	0.617	.4916	0.8042	0.225
.6896	0.5035	0.742	.5940	0.7873	0.218	.4992	0.9485	0.611	.4972	0.8160	0.237
.6909	0.5062	0.759	.5955	0.7905	0.221	7995.4630	0.2451	0.225	.4986	0.8189	0.235
.6965	0.5180	0.734	.6015	0.8033	0.229	.4644	0.2481	0.212	.5000	0.8219	0.257
.6979	0.5210	0.729	.6030	0.8065	0.227	.4658	0.2510	0.221	.5013	0.8248	0.257
.6993	0.5239	0.741	.6044	0.8094	0.237	.4671	0.2540	0.218	.5069	0.8366	0.255
.7006	0.5269	0.732	.6058	0.8124	0.237	.4726	0.2655	0.235	.5083	0.8396	0.279
.7062	0.5387	0.711	.6119	0.8254	0.265	.4748	0.2702	0.216	.5097	0.8425	0.285
.7075	0.5414	0.691	.6160	0.8340	0.281	.4766	0.2742	0.217	.5111	0.8455	0.285
.7090	0.5446	0.683	.6175	0.8372	0.283	.4781	0.2773	0.222	.5166	0.8573	0.311
.7104	0.5475	0.672	.6229	0.8488	0.296	.4843	0.2904	0.219	.5180	0.8602	0.325
.7159	0.5593	0.604	.6244	0.8520	0.309	.4858	0.2936	0.225	.5194	0.8632	0.325
.7173	0.5623	0.592	.6259	0.8551	0.314	.4869	0.2960	0.228	.5208	0.8661	0.330
.7187	0.5652	0.579	.6273	0.8581	0.316	.4884	0.2992	0.228	.5325	0.8910	0.407
.7203	0.5687	0.541	.6327	0.8697	0.346	.4994	0.3226	0.289	.5340	0.8942	0.414
.7255	0.5797	0.513	.6342	0.8728	0.354	.5009	0.3258	0.282	.5354	0.8971	0.419
.7270	0.5830	0.493	.6363	0.8773	0.363	.5023	0.3287	0.298	.5366	0.8998	0.432
.7284	0.5859	0.487	.6423	0.8901	0.423	.5037	0.3317	0.301	.5422	0.9116	0.462
.7291	0.5874	0.482	.6440	0.8935	0.414	.5095	0.3440	0.331	.5437	0.9148	0.475
.7305	0.5903	0.463	.6452	0.8962	0.420	.5109	0.3469	0.345	.5451	0.9178	0.494
.7361	0.6021	0.451	.6507	0.9078	0.458	.5123	0.3499	0.341	.5464	0.9205	0.512
.7375	0.6051	0.425	.6523	0.9112	0.474	.5137	0.3528	0.342	.5520	0.9325	0.551
.7388	0.6080	0.410	.6538	0.9144	0.475	.5190	0.3641	0.356	.5534	0.9355	0.571
.7402	0.6110	0.410	.6551	0.9171	0.499	.5204	0.3671	0.365	.5547	0.9382	0.584
.7458	0.6228	0.374	.6559	0.9188	0.500	.5216	0.3698	0.379	.5562	0.9414	0.600
.7472	0.6257	0.375	.6612	0.9302	0.544	.5233	0.3732	0.391	.5618	0.9532	0.661
.7486	0.6287	0.372	.6627	0.9334	0.561	.5301	0.3877	0.409	.5631	0.9561	0.674
.7500	0.6316	0.360	.6641	0.9363	0.575	.5316	0.3909	0.425	.5645	0.9591	0.703
.7555	0.6434	0.347	.6655	0.9393	0.592	.5329	0.3937	0.435	.5659	0.9620	0.711
.7569	0.6464	0.344	.6709	0.9508	0.661	.5383	0.4052	0.471	.5729	0.9768	0.763
.7583	0.6493	0.329	.6724	0.9540	0.691	.5398	0.4084	0.479	.5743	0.9797	0.761
.7598	0.6525	0.329	.6742	0.9577	0.675	.5412	0.4114	0.479	.5756	0.9827	0.758
.7652	0.6641	0.325	.6758	0.9611	0.690	.5426	0.4143	0.491	.5770	0.9856	0.763
.7666	0.6670	0.308	.6772	0.9641	0.710	.5485	0.4269	0.559	.5811	0.9942	0.760
.7683	0.6707	0.293	.6833	0.9771	0.754	.5500	0.4300	0.554	.5826	0.9974	0.771
.7696	0.6734	0.291	.6849	0.9806	0.751	.5515	0.4333	0.584	.5840	0.0004	0.769
7965.4965	0.5803	0.535	.6863	0.9835	0.769	.5530	0.4364	0.589	.5854	0.0033	0.763
.4979	0.5832	0.525	.6876	0.9862	0.760	.5558	0.4480	0.637	.5895	0.0122	0.767
.4994	0.5864	0.493	7970.6427	0.5136	0.746	.5600	0.4512	0.642	.5909	0.0151	0.754
.5008	0.5893	0.489	.6442	0.5168	0.732	.5616	0.4546	0.671	.5923	0.0181	0.762
.5062	0.6009	0.435	.6456	0.5198	0.739	.5630	0.4576	0.653	.5989	0.0321	0.742
.5077	0.6041	0.433	.6469	0.5225	0.761	.5683	0.4689	0.723	.6004	0.0353	0.715
.5090	0.6068	0.440	.6525	0.5343	0.702	.5697	0.4718	0.713	.6020	0.0388	0.692
.5105	0.6100	0.427	.6540	0.5375	0.702	.5710	0.4746	0.700	.6034	0.0417	0.683
.5160	0.6216	0.395	.6547	0.5390	0.700	.5725	0.4777	0.725	.6083	0.0520	0.620
.5175	0.6248	0.381	.6560	0.5419	0.687	.5780	0.4895	0.704	.6097	0.0550	0.613
.5188	0.6277	0.367	.6574	0.5459	0.665	.5794	0.4925	0.697	.6111	0.0579	0.588
.5202	0.6306	0.364	.6631	0.5569	0.635	.5808	0.4955	0.711	.6125	0.0609	0.587
.5258	0.6425	0.347	.6646	0.5601	0.599	.5822	0.4984	0.711	.6138	0.0638	0.567
.5272	0.6454	0.347	.6660	0.5630	0.599	.5836	0.5013	0.714	.6194	0.0756	0.510
.5285	0.6481	0.342	.6673	0.5658	0.582	.5898	0.5146	0.718	.6208	0.0786	0.491
.5300	0.6513	0.331	.6727	0.5773	0.558	.5912	0.5176	0.707	.6222	0.0815	0.480
.5355	0.6631	0.292	.6743	0.5807	0.530	.5926	0.5205	0.727	.6235	0.0843	0.476
.5369	0.6661	0.297	.6757	0.5837	0.510	.5941	0.5237	0.709	8000.4685	0.8796	0.366
.5383	0.6690	0.289	.6771	0.5866	0.503	.5995	0.5353	0.702	.4699	0.8826	0.379
.5397	0.6720	0.289	.6828	0.5987	0.448	.6009	0.5382	0.685	.4713	0.8855	0.400
.5452	0.6838	0.281	.6843	0.6019	0.452	.6023	0.5412	0.670	.4727	0.8885	0.398
.5466	0.6867	0.262	.6856	0.6046	0.457	.6037	0.5441	0.657	.4782	0.9003	0.422
.5480	0.6897	0.260	.6878	0.6093	0.444	.6093	0.5559	0.618	.4796	0.9032	0.435
.5494	0.6926	0.264	7992.4602	0.8656	0.334	.6106	0.5589	0.597	.4810	0.9062	0.438
.5605	0.7162	0.229	.4616	0.8685	0.338	.6120	0.5618	0.597	.4824	0.9091	0.438
.5619	0.7192	0.241	.4631	0.8717	0.358	.6134	0.5648	0.584	.4880	0.9209	0.502
.5636	0.7229	0.236	.4643	0.8744	0.345	.6197	0.5781	0.526	.4895	0.9241	0.520

TABLE IIIa (continued)

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
8000.4907	0.9269	0.528	8000.5435	0.0390	0.703	8000.6034	0.1661	0.268	8001.5220	0.1179	0.391
.4922	0.9300	0.539	.5491	0.0508	0.632	8001.4761	0.0202	0.755	.5275	0.1294	0.357
.4984	0.9431	0.599	.5505	0.0537	0.626	.4776	0.0235	0.749	.5290	0.1326	0.347
.4998	0.9460	0.605	.5520	0.0569	0.625	.4789	0.0262	0.746	.5304	0.1356	0.342
.5012	0.9490	0.631	.5527	0.0584	0.600	.4804	0.0293	0.719	.5316	0.1383	0.320
.5025	0.9519	0.650	.5539	0.0611	0.586	.4858	0.0409	0.693	.5372	0.1510	0.331
.5081	0.9637	0.697	.5595	0.0729	0.538	.4872	0.0439	0.676	.5387	0.1533	0.296
.5095	0.9667	0.699	.5609	0.0758	0.517	.4887	0.0471	0.648	.5402	0.1565	0.292
.5110	0.9699	0.708	.5623	0.0788	0.509	.4941	0.0586	0.621	.5415	0.1592	0.293
.5124	0.9728	0.731	.5637	0.0818	0.500	.4956	0.0618	0.589	.5469	0.1707	0.264
.5138	0.9758	0.746	.5692	0.0935	0.445	.4970	0.0648	0.589	.5484	0.1739	0.259
.5193	0.9876	0.768	.5735	0.1026	0.415	.4985	0.0679	0.573	.5498	0.1770	0.259
.5207	0.9905	0.756	.5792	0.1147	0.377	.5040	0.0795	0.502	.5511	0.1797	0.250
.5221	0.9935	0.751	.5807	0.1179	0.368	.5053	0.0822	0.497	.5566	0.1915	0.243
.5275	0.0050	0.774	.5820	0.1206	0.359	.5068	0.0854	0.472	.5573	0.1929	0.240
.5291	0.0082	0.751	.5833	0.1214	0.364	.5081	0.0884	0.476	.5587	0.1959	0.234
.5304	0.0112	0.766	.5894	0.1364	0.322	.5136	0.0999	0.422	.5602	0.1991	0.217
.5318	0.0141	0.752	.5909	0.1395	0.329	.5150	0.1029	0.411	.5616	0.2020	0.233
.5366	0.0242	0.749	.5921	0.1422	0.309	.5165	0.1061	0.404	.5671	0.2136	0.245
.5381	0.0274	0.737	.5935	0.1452	0.305	.5178	0.1088	0.392	.5684	0.2165	0.251
.5395	0.0304	0.714	.5991	0.1570	0.296	.5191	0.1117	0.402	.5698	0.2195	0.245
.5409	0.0333	0.704	.6005	0.1600	0.267	.5205	0.1147	0.390	.5712	0.2224	0.232
.5421	0.0360	0.692	.6020	0.1631	0.276						

TABLE IIIb. Blue observations of DK Cygni.

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
7579.5738	0.6727	-0.244	7583.5127	0.0412	+0.117	7583.6183	0.2654	-0.296	7873.7190	0.5955	-0.078
.5752	0.6756	0.248	.5141	0.0441	0.128	.6238	0.2773	0.290	.7203	0.5982	0.079
.5766	0.6786	0.243	.5155	0.0471	0.129	.6252	0.2802	0.309	.7219	0.6017	0.094
.5779	0.6816	0.257	.5210	0.0586	0.066	.6266	0.2831	0.284	.7274	0.6132	0.147
.5793	0.6845	0.239	.5224	0.0618	0.046	.6280	0.2861	0.285	.7288	0.6162	0.136
.5840	0.6943	0.271	.5238	0.0648	0.027	.6336	0.2979	0.248	.7303	0.6194	0.149
.5853	0.6973	0.298	.5251	0.0675	0.013	.6349	0.3008	0.245	.7314	0.6218	0.143
.5867	0.7002	0.303	.5308	0.0795	-0.039	.6363	0.3038	0.228	.7371	0.6339	0.175
.5881	0.7032	0.303	.5322	0.0825	0.065	.6377	0.3067	0.250	.7387	0.6373	0.187
.5934	0.7145	0.306	.5336	0.0854	0.052	.6433	0.3185	0.237	.7401	0.6403	0.190
.5948	0.7174	0.308	.5348	0.0881	0.077	.6447	0.3204	0.227	.7415	0.6432	0.193
.5962	0.7204	0.300	.5405	0.1002	0.098	.6461	0.3244	0.223	.7468	0.6545	0.221
.5976	0.7233	0.307	.5419	0.1031	0.132	.6474	0.3274	0.210	.7482	0.6575	0.240
.6029	0.7346	0.330	.5433	0.1061	0.137	.6530	0.3392	0.202	.7498	0.6609	0.248
.6044	0.7379	0.340	.5447	0.1091	0.145	.6544	0.3421	0.209	.7512	0.6639	0.240
.6059	0.7410	0.333	.5502	0.1208	0.182	.6558	0.3451	0.209	.7593	0.6811	0.266
.6073	0.7440	0.344	.5516	0.1238	0.182	.6572	0.3480	0.172	.7607	0.6840	0.283
.6441	0.8222	0.282	.5530	0.1267	0.204	.6627	0.3599	0.147	.7663	0.6958	0.300
.6463	0.8269	0.261	.5544	0.1297	0.225	.6641	0.3628	0.151	.7676	0.6988	0.303
.6476	0.8296	0.261	.5599	0.1415	0.213	.6655	0.3658	0.148	.7690	0.7017	0.303
.6490	0.8325	0.256	.5613	0.1444	0.220	.6669	0.3687	0.145	.7703	0.7045	0.308
.6550	0.8453	0.231	.5626	0.1471	0.232	.6724	0.3805	0.106	.7760	0.7165	0.322
.6564	0.8483	0.227	.5642	0.1506	0.232	.6738	0.3835	0.085	.7773	0.7192	0.322
.6577	0.8510	0.213	.5753	0.1742	0.267	.6752	0.3864	0.069	.7788	0.7224	0.305
.6592	0.8542	0.213	.5766	0.1769	0.274	.6766	0.3894	0.048	.7800	0.7251	0.312
.6625	0.8613	0.198	.5780	0.1799	0.260	.6822	0.4012	0.022	.7857	0.7372	0.327
.6640	0.8645	0.190	.5794	0.1828	0.262	.6836	0.4041	0.009	.7871	0.7401	0.327
.6656	0.8677	0.175	.5850	0.1946	0.289	.6849	0.4071	0.005	.7885	0.7431	0.336
.6671	0.8709	0.175	.5863	0.1976	0.300	.6863	0.4100	+0.019	.7899	0.7460	0.336
.6724	0.8822	0.143	.5877	0.2005	0.291	.6919	0.4218	0.043	.8010	0.7696	0.312
.6738	0.8852	0.128	.5891	0.2035	0.289	.6933	0.4248	0.044	.8023	0.7723	0.331
.6752	0.8881	0.120	.5947	0.2153	0.303	.6947	0.4277	0.064	.8038	0.7755	0.317
.6765	0.8911	0.100	.5961	0.2182	0.311	.6961	0.4307	0.075	.8054	0.7790	0.323
.6812	0.9009	0.070	.5974	0.2212	0.327	.7016	0.4425	0.114	.8107	0.7903	0.293
.6824	0.9036	0.071	.5988	0.2241	0.321	.7030	0.4454	0.125	.8121	0.7932	0.298
.6838	0.9065	0.049	.6044	0.2359	0.294	.7044	0.4484	0.164	.8134	0.7959	0.304
.6852	0.9095	0.028	.6058	0.2389	0.292	.7058	0.4513	0.164	.8149	0.7991	0.293
7583.5016	0.0176	+0.260	.6072	0.2418	0.278	.7113	0.4631	0.214	.8204	0.8109	0.287
.5030	0.0205	0.251	.6087	0.2450	0.304	.7127	0.4661	0.221	.8218	0.8139	0.282
.5044	0.0235	0.212	.6141	0.2566	0.310	.7141	0.4690	0.229	.8232	0.8168	0.271
.5058	0.0264	0.229	.6155	0.2595	0.280	.7155	0.4720	0.256	.8245	0.8195	0.282
.5113	0.0382	0.138	.6169	0.2625	0.306	.7169	0.4749	0.232	.8301	0.8316	0.245

TABLE IIIb (continued)

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
7873.8314	0.8343	-0.240	7929.7211	0.5740	+0.028	7937.7194	0.5667	+0.047	7965.6349	0.8743	-0.184
.8328	0.8478	0.232	.7226	0.5772	0.028	.7210	0.5701	0.036	.6370	0.8788	0.168
.8343	0.8404	0.232	.7241	0.5804	0.010	.7263	0.5814	-0.012	.6431	0.8918	0.144
.8399	0.8522	0.206	.7258	0.5841	-0.014	.7277	0.5844	0.042	.6445	0.8947	0.123
.8411	0.8550	0.188	.7313	0.5957	0.064	.7298	0.5888	0.035	.6459	0.8977	0.123
.8440	0.8611	0.186	.7335	0.6004	0.087	.7312	0.5918	0.050	.6515	0.9095	0.073
.8496	0.8729	0.161	.7349	0.6033	0.115	.7367	0.6036	0.090	.6530	0.9127	0.051
.8510	0.8758	0.148	.7363	0.6063	0.103	.7381	0.6065	0.094	.6544	0.9156	0.056
.8522	0.8785	0.152	.7411	0.6166	0.127	.7395	0.6095	0.087	.6566	0.9203	0.036
.8538	0.8817	0.173	.7439	0.6225	0.150	.7409	0.6124	0.098	.6620	0.9319	+0.012
7915.7238	0.8363	-0.212	.7453	0.6254	0.138	.7465	0.6242	0.117	.6634	0.9348	0.029
.7256	0.8400	0.226	.7467	0.6284	0.165	.7479	0.6272	0.113	.6648	0.9378	0.055
.7273	0.8437	0.221	.7480	0.6311	0.159	.7494	0.6304	0.139	.6662	0.9407	0.073
.7287	0.8467	0.218	.7536	0.6431	0.179	.7506	0.6331	0.146	.6718	0.9528	0.150
.7344	0.8587	0.175	.7550	0.6461	0.201	.7563	0.6452	0.183	.6734	0.9560	0.155
.7358	0.8616	0.158	.7563	0.6488	0.184	.7576	0.6479	0.185	.6751	0.9597	0.156
.7372	0.8646	0.176	.7577	0.6517	0.200	.7590	0.6508	0.189	.6764	0.9624	0.177
.7387	0.8678	0.181	.7632	0.6636	0.204	.7604	0.6538	0.202	.6779	0.9656	0.188
.7441	0.8794	0.146	.7646	0.6665	0.207	.7659	0.6656	0.215	.6842	0.9791	0.220
.7454	0.8821	0.146	.7661	0.6697	0.226	.7673	0.6685	0.213	.6857	0.9823	0.228
.7469	0.8853	0.139	.7675	0.6727	0.234	.7689	0.6719	0.224	.6869	0.9848	0.219
.7483	0.8882	0.112	.7794	0.6980	9.265	.7703	0.6749	0.237	.6883	0.9877	0.238
.7617	0.9168	+0.008	.7811	0.7014	0.254	7965.4972	0.5817	+0.004	7970.6436	0.5153	+0.181
.7638	0.9212	0.004	.7828	0.7051	0.279	.4987	0.5849	-0.011	.6449	0.5183	0.188
.7700	0.9345	0.062	.7842	0.7081	0.271	.5001	0.5879	0.033	.6463	0.5212	0.202
.7716	0.9379	0.085	.7897	0.7198	0.285	.5015	0.5908	0.033	.6477	0.5242	0.209
.7730	0.9408	0.081	.7911	0.7228	0.289	.5070	0.6026	0.085	.6533	0.5360	0.165
.7780	0.9514	0.165	.7925	0.7258	0.299	.5084	0.6056	0.085	.6554	0.5404	0.130
.7794	0.9544	0.175	.7939	0.7287	0.317	.5098	0.6085	0.096	.6567	0.5434	0.123
.7809	0.9576	0.171	.7995	0.7405	0.289	.5111	0.6112	0.099	.6581	0.5463	0.123
.7822	0.9603	0.213	.8008	0.7435	0.303	.5168	0.6233	0.146	.6638	0.5584	0.085
.7876	0.9718	0.252	.8022	0.7464	0.316	.5181	0.6262	0.146	.6652	0.5613	0.079
.7894	0.9755	0.226	.8036	0.7494	0.309	.5194	0.6289	0.149	.6667	0.5645	0.065
.7907	0.9785	0.239	7937.5590	0.2259	-0.319	.5208	0.6319	0.152	.6680	0.5672	0.046
.7919	0.9809	0.234	.5602	0.2286	0.300	.5265	0.6439	0.178	.6736	0.5793	0.027
.7933	0.9839	0.254	.5618	0.2318	0.304	.5279	0.6469	0.194	.7650	0.5822	-0.020
.8128	0.0254	0.249	.5631	0.2347	0.309	.5293	0.6499	0.200	.6764	0.5852	0.006
.8147	0.0294	0.191	.5687	0.2466	0.319	.5306	0.6528	0.206	.6778	0.5881	0.020
.8160	0.0321	0.186	.5701	0.2495	0.323	.5361	0.6643	0.220	.6836	0.6004	0.065
.8174	0.0350	0.148	.5716	0.2527	0.327	.5376	0.6676	0.238	.6850	0.6034	0.072
.8189	0.0382	0.148	.5729	0.2554	0.342	.5390	0.6705	0.242	.6870	0.6076	0.066
.8249	0.0510	0.077	.5784	0.2672	0.328	.5404	0.6734	0.245	.6885	0.6107	0.066
.8263	0.0540	0.087	.5797	0.2699	0.321	.5459	0.6852	0.260	7992.4609	0.8671	-0.201
.8278	0.0572	0.076	.5812	0.2731	0.315	.5473	0.6882	0.274	.4623	0.8700	0.188
.8294	0.0606	0.103	.5826	0.2761	0.326	.5487	0.6911	0.283	.4636	0.8730	0.185
.8309	0.0638	0.076	.5937	0.2997	0.275	.5501	0.6941	0.283	.4650	0.8759	0.177
.8365	0.0756	-0.010	.5951	0.3026	0.247	.5612	0.7177	0.292	.4761	0.8995	0.102
.8377	0.0783	+0.006	.5965	0.3056	0.269	.5628	0.7212	0.301	.4775	0.9025	0.133
.8391	0.0812	-0.035	.5977	0.3083	0.252	.5643	0.7243	0.305	.4788	0.9052	0.106
.8404	0.0840	-0.046	.6034	0.3203	0.232	.5659	0.7278	0.317	.4803	0.9084	0.091
7929.6613	0.4469	+0.133	.6048	0.3233	0.230	.5741	0.7450	0.323	.4859	0.9202	0.031
.6628	0.4501	0.133	.6063	0.3265	0.230	.5754	0.7479	0.334	.4873	0.9231	0.020
.6642	0.4531	0.122	.6076	0.3292	0.246	.5772	0.7516	0.327	.4886	0.9261	0.032
.6654	0.4558	0.172	.6131	0.3410	0.222	.5842	0.7666	0.306	.4900	0.9290	0.019
.6712	0.4680	0.217	.6145	0.3439	0.199	.5857	0.7698	0.301	.4956	0.9408	+0.012
.6730	0.4718	0.221	.6777	0.4782	+0.209	.5871	0.7728	0.313	.4970	0.9438	0.042
.6746	0.4752	0.214	.6791	0.4811	0.218	.5885	0.7757	0.321	.4984	0.9467	0.051
.6761	0.4784	0.222	.6807	0.4846	0.200	.5903	0.7794	0.316	.4996	0.9494	0.051
.6814	0.4897	0.214	.6861	0.4959	0.229	.5921	0.7834	0.310	7995.4637	0.2466	-0.305
.6828	0.4926	0.232	.6874	0.4988	0.223	.5948	0.7890	0.317	.4651	0.2496	0.321
.6843	0.4958	0.250	.6888	0.5018	0.204	.5960	0.7917	0.326	.4664	0.2525	0.322
.6858	0.4991	0.230	.6903	0.5050	0.227	.6024	0.8052	0.311	.4678	0.2555	0.325
.6914	0.5108	0.222	.6916	0.5077	0.251	.6037	0.8080	0.306	.4740	0.2685	0.318
.6932	0.5148	0.256	.6972	0.5195	0.217	.6051	0.8109	0.298	.4755	0.2717	0.308
.6947	0.5180	0.210	.6987	0.5227	0.213	.6065	0.8138	0.305	.4773	0.2756	0.308
.6962	0.5212	0.203	.6999	0.5254	0.209	.6126	0.8269	0.286	.4795	0.2803	0.327
.7021	0.5337	0.171	.7013	0.5284	0.204	.6168	0.8357	0.269	.4850	0.2918	0.310
.7036	0.5369	0.174	.7069	0.5401	0.153	.6181	0.8387	0.256	.4863	0.2948	0.301
.7051	0.5401	0.180	.7083	0.5431	0.180	.6236	0.8502	0.229	.4876	0.2975	0.298
.7065	0.5431	0.161	.7097	0.5460	0.140	.6251	0.8534	0.224	.4891	0.3007	0.308
.7120	0.5546	0.095	.7111	0.5490	0.129	.6267	0.8569	0.232	.5004	0.3246	0.247
.7137	0.5583	0.075	.7166	0.5608	0.083	.6280	0.8596	0.209	.5016	0.3273	0.242
.7155	0.5622	0.050	.7180	0.5637	0.067	.6334	0.8711	0.193	.5029	0.3300	0.236

TABLE IIIb (continued)

JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm	JD Hel. 2430000+	Phase	Δm
7995.5144	0.3543	-0.173	7999.4895	0.7997	-0.327	7999.6145	0.0653	+0.050	8000.5814	0.1194	-0.193
.5197	0.3656	0.172	.4909	0.8027	0.319	.6201	0.0771	-0.015	.5841	0.1253	0.207
.5211	0.3686	0.165	.4923	0.8056	0.312	.6215	0.0800	0.020	.5900	0.1378	0.220
.5226	0.3718	0.169	.4979	0.8174	0.302	.6227	0.0828	0.030	.5915	0.1410	0.231
.5238	0.3745	0.144	.4993	0.8204	0.294	.6241	0.0857	0.044	.5928	0.1437	0.252
.5294	0.3863	0.117	.5006	0.8233	0.295	8000.4693	0.8814	-0.181	.5942	0.1467	0.249
.5308	0.3892	0.120	.5020	0.8263	0.302	.4706	0.8841	0.177	.5999	0.1587	0.264
.5323	0.3924	0.109	.5075	0.8379	0.271	.4721	0.8872	0.156	.6027	0.1646	0.271
.5336	0.3951	0.080	.5090	0.8410	0.266	.4734	0.8900	0.146	.6039	0.1673	0.279
.5391	0.4069	0.055	.5104	0.8440	0.248	.4791	0.9020	0.112	8001.4768	0.0217	+0.226
.5405	0.4099	0.036	.5118	0.8469	0.246	.4803	0.9047	0.066	.4783	0.0249	0.226
.5419	0.4128	0.029	.5173	0.8587	0.216	.4817	0.9077	0.073	.4796	0.0276	0.227
.5433	0.4158	0.011	.5186	0.8614	0.223	.4831	0.9106	0.078	.4811	0.0308	0.183
.5493	0.4286	+0.030	.5201	0.8646	0.211	.4887	0.9224	0.017	.4866	0.0426	0.132
.5508	0.4318	0.073	.5215	0.8676	0.200	.4902	0.9256	0.037	.4880	0.0456	0.116
.5523	0.4350	0.078	.5333	0.8927	0.128	.4914	0.9283	+0.004	.4894	0.0485	0.084
.5537	0.4379	0.083	.5347	0.8956	0.100	.4928	0.9313	0.047	.4948	0.0601	0.045
.5593	0.4497	0.112	.5361	0.8986	0.111	.4991	0.9445	0.082	.4963	0.0633	0.056
.5607	0.4527	0.117	.5373	0.9013	0.090	.5005	0.9475	0.069	.4976	0.0660	0.004
.5622	0.4559	0.135	.5429	0.9131	0.062	.5019	0.9505	0.079	.4991	0.0692	0.037
.5637	0.4590	0.180	.5444	0.9163	0.070	.5032	0.9534	0.075	.5047	0.0810	-0.018
.5690	0.4704	0.181	.5457	0.9190	0.042	.5088	0.9652	0.131	.5061	0.0839	0.060
.5703	0.4731	0.186	.5472	0.9222	0.039	.5102	0.9682	0.164	.5073	0.0866	0.025
.5718	0.4763	0.182	.5527	0.9340	+0.024	.5116	0.9711	0.159	.5088	0.0898	0.089
.5730	0.4790	0.186	.5541	0.9370	0.045	.5145	0.9772	0.202	.5144	0.1016	0.133
.5786	0.4908	0.181	.5555	0.9399	0.075	.5200	0.9891	0.238	.5158	0.1046	0.157
.5801	0.4940	0.180	.5569	0.9428	0.076	.5214	0.9920	0.208	.5171	0.1073	0.148
.5815	0.4969	0.187	.5625	0.9547	0.127	.5227	0.9947	0.214	.5184	0.1102	0.174
.5829	0.4999	0.188	.5638	0.9576	0.141	.5241	0.9977	0.256	.5200	0.1135	0.175
.5843	0.5028	0.214	.5652	0.9606	0.147	.5296	0.0095	0.244	.5213	0.1164	0.162
.5905	0.5161	0.180	.5665	0.9633	0.162	.5311	0.0127	0.219	.5227	0.1193	0.175
.5919	0.5190	0.174	.5736	0.9783	0.223	.5324	0.0154	0.230	.5283	0.1311	0.189
.5933	0.5220	0.200	.5750	0.9812	0.223	.5375	0.0262	0.196	.5297	0.1341	0.204
.5947	0.5250	0.203	.5763	0.9842	0.233	.5388	0.0289	0.182	.5310	0.1368	0.201
.6002	0.5368	0.167	.5777	0.9871	0.253	.5400	0.0316	0.182	.5325	0.1400	0.210
.6016	0.5397	0.152	.5819	0.9960	0.228	.5416	0.0348	0.132	.5379	0.1516	0.222
.6030	0.5426	0.172	.5832	0.9987	0.248	.5429	0.0377	0.138	.5393	0.1545	0.228
.6044	0.5456	0.143	.5847	0.0019	0.237	.5443	0.0407	0.143	.5407	0.1574	0.236
.6100	0.5574	0.114	.5861	0.0048	0.243	.5498	0.0522	0.085	.5422	0.1606	0.252
.6113	0.5603	0.114	.5902	0.0147	0.252	.5513	0.0554	0.081	.5477	0.1725	0.275
.6127	0.5633	0.091	.5916	0.0166	0.240	.5534	0.0599	0.061	.5491	0.1755	0.279
.6141	0.5663	0.078	.5929	0.0193	0.232	.5546	0.0626	0.043	.5505	0.1784	0.272
.6203	0.5793	0.035	.5951	0.0240	0.222	.5603	0.0746	0.014	.5519	0.1814	0.272
.6218	0.5825	0.022	.5996	0.0336	0.190	.5617	0.0776	0.019	.5580	0.1944	0.286
.6230	0.5852	0.021	.6012	0.0370	0.174	.5643	0.0832	-0.032	.5594	0.1973	0.288
.6245	0.5884	-0.009	.6027	0.0402	0.159	.5700	0.0953	0.071	.5609	0.2006	0.303
7999.4729	0.7643	-0.323	.6041	0.0432	0.134	.5713	0.0980	0.090	.5623	0.2035	0.307
.4743	0.7673	0.326	.6090	0.0535	0.095	.5728	0.1012	0.123	.5677	0.2150	0.284
.4756	0.7702	0.325	.6105	0.0567	0.069	.5742	0.1041	0.092	.5691	0.2180	0.288
.4770	0.7732	0.325	.6118	0.0594	0.075	.5799	0.1162	0.199	.5706	0.2212	0.290
.4881	0.7968	0.323	.6131	0.0624	0.060						

Table IV lists the normal points which are shown plotted in Fig. 1. A zero point correction of -0.029 magnitude for yellow light and $+0.534$ magnitude for blue light was applied to normalize the magnitude difference to zero at maximum light.

4. ORBITAL SOLUTION

The magnitudes and phases of the normal points were converted into intensities and phase angles. Least squares solutions were made for the light in the maxima according to the formula:

$$I = A_0 + A_1 \cos\theta + A_2 \cos 2\theta + B_1 \sin\theta + B_2 \sin 2\theta.$$

The values of the constants and the probable errors are given in Table V. The coefficient of the $\cos\theta$ term is positive, which is contrary to theory, and it is several times larger than the probable error.

The intensities were first rectified for the small $\sin\theta$ and $\sin 2\theta$ terms by subtraction. The rectification for reflection gives difficulty because of the positive $\cos\theta$ term. This coefficient is so large that it cannot be set equal to zero. Experimentally it was introduced into the usual rectification procedure. The constant term in the reflection and the term in the $\cos^2\theta$ or $\cos 2\theta$ term were taken from the statistical expression (111) of the monograph by Russell and Merrill (1952).

FIG. 1. The light curves and color curve of DK Cygni. The observations are *B*=blue, *Y*=yellow, *C*=color.

Then the customary rectifications for the oblateness and the phase angle were carried out. From the orbital solution it follows that secondary minimum is caused by the total eclipse. The following elements were derived; these should be considered as provisional values.

TABLE IV. Normal points of DK Cygni.

Phase	<i>m_y</i>	<i>n</i>	Phase	<i>m_b</i>	<i>n</i>	Phase	<i>m_y</i>	<i>n</i>	Phase	<i>m_b</i>	<i>n</i>
0.0067	0.556	6	0.0087	0.564	5	0.5371	0.481	10	0.5385	0.488	9
0.0165	0.551	5	0.0179	0.567	5	0.5512	0.433	15	0.5527	0.438	15
0.0245	0.538	9	0.0258	0.541	10	0.5716	0.347	15	0.5732	0.360	15
0.0334	0.501	10	0.0352	0.489	10	0.5866	0.284	15	0.5881	0.297	14
0.0429	0.460	10	0.0442	0.445	10	0.6022	0.231	15	0.6041	0.238	14
0.0566	0.395	15	0.0582	0.396	14	0.6185	0.184	15	0.6199	0.196	15
0.0713	0.325	14	0.0716	0.341	14	0.6374	0.141	15	0.6389	0.151	15
0.0839	0.270	13	0.0862	0.273	14	0.6577	0.101	15	0.6588	0.111	16
0.1044	0.204	10	0.1055	0.187	11	0.6768	0.074	15	0.6787	0.075	16
0.1250	0.150	15	0.1270	0.128	14	0.7007	0.031	15	0.7022	0.034	15
0.1513	0.094	15	0.1521	0.083	14	0.7219	0.015	15	0.7234	0.019	15
0.1851	0.042	15	0.1862	0.045	14	0.7422	0.000	15	0.7438	0.000	14
0.2199	0.018	15	0.2212	0.022	14	0.7723	0.001	15	0.7739	0.007	15
0.2504	0.018	15	0.2519	0.016	15	0.8010	0.021	15	0.8025	0.019	15
0.2779	0.024	15	0.2795	0.016	15	0.8252	0.060	15	0.8266	0.054	15
0.3091	0.070	15	0.3105	0.077	15	0.8426	0.087	15	0.8449	0.091	15
0.3325	0.100	10	0.3328	0.100	8	0.8581	0.125	15	0.8597	0.125	14
0.3532	0.139	10	0.3557	0.154	8	0.8712	0.150	15	0.8727	0.149	15
0.3776	0.198	9	0.3799	0.208	10	0.8855	0.188	15	0.8874	0.184	15
0.4009	0.260	7	0.4024	0.280	7	0.9014	0.228	15	0.9026	0.234	15
0.4187	0.322	7	0.4202	0.348	7	0.9152	0.281	15	0.9170	0.287	13
0.4372	0.403	7	0.4385	0.422	7	0.9307	0.344	15	0.9322	0.349	14
0.4515	0.452	9	0.4529	0.469	9	0.9462	0.416	15	0.9476	0.412	15
0.4699	0.526	12	0.4709	0.537	11	0.9624	0.494	14	0.9630	0.495	13
0.4859	0.519	11	0.4881	0.534	12	0.9786	0.551	10	0.9801	0.553	10
0.5060	0.533	12	0.5075	0.541	12	0.9898	0.553	8	0.9920	0.559	9
0.5210	0.523	11	0.5225	0.532	11						

$k = 0.45$	$\epsilon = 0.13$
$a_g = 0.51$	$a_s = 0.23$
$b_g = 0.44$	$b_s = 0.20$
$\alpha_0^{oc} = 1.00$	$i = 77^\circ 3$

yellow	blue
$x = 0.4$	$x = 0.6$
$\alpha_0^{tr} = 1.02$	$\alpha_0^{tr} = 1.03$
$L_g = 0.885$	$L_g = 0.882$
$L_s = 0.115$	$L_s = 0.118$
$I_g = 1.56 I_s$	$I_g = 1.52 I_s$

TABLE V. Coefficients of the light in the maxima.

λ	A_0	A_1	A_2	B_1	B_2
Y	+0.8575 ± 14	+0.0181 ± 15	-0.1370 ± 21	-0.0048 ± 8	+0.0052 ± 9
B	+0.8569 ± 26	+0.0255 ± 28	-0.1354 ± 39	-0.0040 ± 14	+0.0035 ± 17

In this list $\epsilon = (a-b)/a$ is the oblateness, i is the inclination corrected for polar flattening and I is the mean surface brightness of a component.

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